termination of the Contractor's responsibility occurs upon the completion of the work.

			<u>Buon</u>
Section 109 - Measurement and Payment			
109.01	Measurement of	109.08	Payment for Material
	Quantities		
109.02	Scope of Payment	109.09	Retainage of Funds
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	Site Conditions, Major		Carrier Rates on
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	Fixed Quantity Items		Exemption
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109.01 Measurement of Quantities. Work completed under the Contract will be measured by the Engineer according to the United States customary units (English units) or the modern metric system, SI (System of International Units) as designated on the Plans.

Unless stated otherwise, all material that is to be measured by weight shall be measured as follows:

109.07 Partial Payment

- A. The weight of each load shall be determined by weighing each loaded truck or other approved hauling equipment and then deducting the tare weight of the truck or hauling equipment. The tare weight shall be checked once daily, or as often as directed by the Engineer. Appropriate adjustments shall be made in the use of the tare weight as directed by the Engineer.
- B. The scale platform shall be of such length and width that it will conveniently accommodate all trucks and other approved hauling equipment. The entire vehicle, including its load, must rest on the scale platform and be weighed as one unit.
- C. Scales will be certified by the State sealer of weights and measures.
- D. Weight tickets showing a net weight of each load of material delivered to the Project will be signed by a Department inspector.

A station when used as a definition or term of measurement will be 100 linear feet (1 km).

Unless otherwise specified, longitudinal measurements for area computations will be made horizontally, and no deductions will be made for individual fixtures (such as manholes, utility poles, etc.)

having an area of 9 square feet (1 m?) or less. Transverse measurements for area computations will be the neat dimensions shown on the Plans.

Measure structures according to neat lines shown.

For items measured by linear foot (linear meter), such as pipe, culverts, guardrails, underdrains, etc., take measurements parallel to the base or foundation upon which such structures are placed. The term "ton" means the short ton consisting of 2000 pounds avoirdupois (the term "metric ton" means 1000 kilograms). Weigh all material measured by weight or proportioned by weight on accurate, approved scales using competent, qualified personnel at locations designated by the Engineer. If materials are shipped by rail, the car weight may be accepted provided that only the actual weight of materials is paid for. However, car weights will not be acceptable for material to be passed through mixing plants. Trucks used to haul material being paid for by weight shall be weighed empty daily at such times as the Engineer directs, and each truck shall bear a plainly legible identification mark.

When requested by the Contractor and approved by the Engineer in writing, material specified to be measured by the cubic yard (cubic meter) may be weighed and such weights will be converted to cubic yards (cubic meters) for payment purposes. Factors for conversion from weight measurement to volume measurement will be determined by the Engineer and shall be agreed to by the Contractor before such method of measurement of pay quantities is used.

Bituminous materials will be measured by the gallon (liter).

Volumes will be measured at 60EF (16EC) or will be corrected to the volume at 60EF (16EC) using ASTM D 1250 for asphalt or ASTM D 633 for tars.

When bituminous materials are shipped by truck or transport, net certified weights or volume subject to correction for loss or foaming may be used for computing quantities.

Cement will be measured by the pound (kilogram).

Timber will be measured by the actual thousand feet board measure, MFBM (cubic meters) incorporated into the structure.

When a complete structure or structural unit (in effect, "lump sum" work) is specified as the unit of measurement, the unit will be construed to include all necessary fittings and accessories.

When standard manufactured items are specified such as fence, wire, plates, rolled shapes, pipe conduit, etc., and these items are identified by unit weight, section dimensions, etc., such identification will be considered to be nominal weights or dimensions. Unless more stringently controlled by tolerances in cited specifications, manufacturing tolerances established by the industries involved will

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109.02 Scope of Payment. The Contractor shall receive and accept compensation provided for in the Contract as full payment for furnishing all materials and for performing work under the Contract in a complete and acceptable manner and for all risk, loss, damage, or expense of every kind arising out of the nature of the work or the performance thereof, subject to the provisions of Subsection 107.13. If the "Basis of Payment" clause relating to any unit price in the Contract requires that the unit price cover and be considered compensation for certain work or materials essential to the item, this same work or material will not be measured or paid for under any other pay item appearing in the Contract.

Under any Section or item included in the Contract, the Contractor shall be aware that when requirements, responsibilities, and furnishing of materials are outlined in the details and notes on the Plans and in the paragraphs preceding the "Basis of Payment" paragraph in these Specifications or Special Provisions, no interpretation shall be made that there is an exclusion from payment because reiteration is not made in the "Basis of Payment" paragraph.

Contractors receiving payments shall, within 30 days of receipt of any payment, file a statement to the Department on a form to be determined by the Department that all subcontractors furnishing labor or material have been paid the full sum due them at that stage of the Contract, except any funds withheld under the terms of the Contract as required by Chapter 8, Title 17 of the Delaware Code, Annotated Revised 1974, and as amended.

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109.03 Compensation for Altered Quantities. When the accepted quantities of work vary from the quantities in the Contract schedule, the Contractor shall accept payment at the original Contract unit prices for the accepted quantities of work done. No allowance will be made for any increased cost, except as provided in Subsections 104.05, 104.06, 104.06, 104.07, and 108.11.

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109.04 Payment for Differing Site Conditions, Major Changes, Extra Work, and Force Account. Differing site conditions, changes, and extra work performed under Section 104 will be paid for using the following methods as appropriate:

- A. Contract unit prices.
- Unit prices agreed upon in the change order authorizing the work.
- C. A lump sum amount agreed upon in the change order authorizing the work.

- D. If directed by the Department, work performed on a force account basis is to be compensated in the following manner except as further provided in <u>Subsection 105.21</u>:
 - 1. Labor. For all necessary labor and foremen in direct charge of the specific operations, whether the employer is the Contractor, subcontractor, or another, the Contractor shall receive the rate of wage (or scale) actually paid as shown in its certified payrolls for each and every hour that said labor and foremen are actually engaged in such work.

The Contractor shall receive the actual costs paid to, or on behalf of, workers by reason of health and welfare benefits or other benefits, when such amounts are required by collective bargaining agreements or other employment contracts generally applicable to the classes of labor employed on the work.

- 2. Bond, Insurance, and Tax. For bond premiums, property damage, liability, and workers compensation insurance premiums, unemployment insurance contributions, and social security taxes on the force account work, the Contractor shall receive the actual incremental cost thereof, necessarily and directly resulting from the force account work. The Contractor shall furnish satisfactory evidence of the rate or rates paid for such bond, insurance, and tax.
- Materials. The Department reserves the right to furnish such materials as it deems advisable, and the

Contractor shall have no claims for costs and markup on such materials. Only materials furnished by the Contractor and necessarily used in the performance of the work will be paid for. The cost of such materials shall be the cost to the purchaser, whether Contractor, subcontractor, or other forces from the supplier thereof, together with transportation charges actually paid by the purchaser, except as the following are applicable:

- a. If a cash or trade discount by the actual supplier is offered or available to the purchaser, it shall be credited to the State notwithstan ding the fact that such discount may not have been taken.
- b. If materials are procured by the purchaser by any method which is not a direct purchase from a direct billing by the actual supplier to such purchaser, the cost of such materials is the price paid to the actual supplier as determined by the Engineer plus the actual costs, if any, incurred in the handling of such materials.
- c If the materials are

obtained from a supply or source owned wholly or in part by the purchaser, the cost of such materials shall not exceed the price paid by the purchaser for similar materials furnished from said source on items or the current wholesale price for such materials delivered to the job site, whichever price is lower.

- d. If the cost of such materials is, in the opinion of the Engineer, excessive, then the cost of such material is deemed to be the lowest current wholesale price at which such materials are available in the quantities concerned delivered to the Project site, less any discounts as provided in a. above.
- e. If the Contractor does not furnish satisfactory evidence of the cost of such materials from the actual supplier thereof, the cost will be determined in accordance with d. above.
 - 4. Equipment and Plant.
 - a. Contractor-Owned Equipment and Plant. The hourly rates for Contractorowned equipment and plant will be determined from the applicable volume of the Rental Rate Blue Book (referred to hereafter

as the "Blue Book"), published by Machinery Information Division of K-III Directory Corporatio n, 1735 Technology Drive, Suite 410, San Jose, CA 95110.

The Blue Book will be used in the following manner:

- 1. The hourly rate will be determined by dividing the monthly rate by 176. The weekly, hourly, and daily rates will not be used.
- 2. The number of hours to be paid will be the number of hours that the equipment or plant is actually used on a specific force account activity.
- The current revisions will be used in establishin

g rates. The current revision applicable to specific force account work is as of the first day of work performed on that force account work and that rate applies throughout the period the force account work is being performed.

- 4. An area adjustment will be made. Equipment life adjustment will be made in accordance with the rate adjustment tables. Overtime shall be charged at the same rate indicated in (1) above.
- 5. The estimated operating costs per hour will be used for each hour that the

equipment or plant is in operation on the force account work. Such costs do not apply to idle time regardless of the cause of the idleness.

6. Idle time for equipment will not be paid for, except where the equipment has been held on the Project site on a standby basis at the request of the Engineer and, but for this request, would have left the **Project** site. Such payment will be made at one-half the rate established in (1) and (4) above.

7. The rates established above include the

oil, lubrication, supplies, small tools, necessary attachment s, repairs, overhaul and maintenanc e of any kind, depreciatio n, storage, overhead, profits, insurance, and all incidentals.

8. Operator costs are not included in this hourly rate for this equipment.

All equipment shall, in the opinion of the Engineer, be in good operating condition. Equipment used by the Contractor shall be specifically described and be of suitable size and suitable capacity required for the work to be performed. In the event the Contractor elects to use equipment of a higher rental value than that suitable for the work, payment will be made at the rate applicable to the suitable equipment. The Resident Engineer will determine the

suitability of the equipment. If there is a differential in the rate of pay of the operator of oversize or higher rate equipment, the rate paid for the operator is to be that for the suitable equipment.

In the event that a rate is not established in the Blue Book for a particular piece of equipment or plant, the Engineer will establish a rate for that piece of equipment or plant that is consistent with its cost and use in the industry.

The above provisions apply to the equipment and plant owned directly by the Contractor or by entities which are divisions, affiliates, subsidiaries, or in any other way related to the Contractor or its parent company.

b. Rented Equipment and Plant. In the event that the Contractor does not own a specific type of equipment and must obtain it by rental, the Contractor shall inform the Resident Engineer of the need to rent the equipment and of the rental rate for that equipment prior to using it on the work. The Contractor will be paid the actual rental rate for the equipment for the time that the equipment is actually used to accomplish the work, provided that rate is reasonable, plus the cost of moving the equipment on to and away from the job. The Contractor shall provide a copy of the paid receipt or canceled check for the rental expense.

incurred.

- Miscellaneous. No allowance will be made for general superintendence, the use of small tools, or other costs for which no specific allowance is herein provided.
- 6. Profit. Profit shall be computed at 5% of the following:
 - Total material cost (bare cost not including FOB).
 - Total direct labor cost (actual hours worked multiplied by regular hourly rate and benefits) as provided by <u>Subsection 109.04</u> D.1.
- 7. Overhead. Overhead is defined to include the following:
 - All salaries and expenses of executive officers, supervising officers, or supervising employees and all home office expenses;
 - b. All clerical or stenographic employees;
 - All charges for minor equipment, such as small tools, including shovels, picks, axes, saws, bars, sledges, lanterns, jacks, cables, pails, wrenches, and other miscellaneous supplies and services; and
 - d. All drafting room accessories such as paper, tracing cloth, and blueprinting.

Overhead costs for Force Account work shall be computed at 10% of the following:

- Total material cost (bare cost not including FOB).
- Total direct labor cost (actual hours worked multiplied by the regular hourly rate) and benefits as provided by Subsection 109.04 D.1.
- c. Total Equipment and Plant cost.
- d. Specific extraordinary overhead expenses, such as hiring of additional supervisory personnel or the use of special type of minor equipment (as defined above), which the Contractor has to purchase specifically for the Force Account, may be allowed. In such instances, the Contractor will be paid only the reasonable costs of such extraordinary overhead expenses provided the Engineer has agreed to such costs prior to their being incurred.

- 8. Subcontracting. For administration costs in connection with approved subcontract work, the Contractor shall receive an amount equal to 5% of the total of such work completed as set forth in 1. through 4. above.
- 9. Records. The Contractor shall maintain force account records in such a manner as to provide a clear distinction between the direct costs of work paid for on a force account basis and the costs of other operations.

From the above records, the Contractor shall furnish the Engineer completed daily force account work reports for each day's work to be paid for on a force account basis. Said daily force account work reports shall be signed by the Contractor and submitted daily. The daily force account work reports shall be detailed as follows:

- Name, classification, date, daily hours, total hours, rate, and extension for each laborer and foreman.
- Designation, dates, daily hours, total hours, rental rate (including a copy of the Blue Book pages used), and extension for each unit of machinery and equipment.
- c. Quantities of materials, prices, and extensions.
- d. Transportation of materials.
- e. Cost of property damage, liability, and workers compensation insurance premiums; unemployment insurance contributions; bonds; and social security tax.

Material charges shall be substantiated by valid copies of vendor's invoices. Such invoices shall be submitted with the daily force account work reports, or if not available, they shall be submitted with subsequent daily force account work reports. Should said vendor's invoices not be submitted within 60 days after the date of delivery of the material, or within 15 days after the completion, whichever occurs first, the Department reserves the right to establish the cost of such materials at the lowest current wholesale prices at which said materials are available, in the quantities concerned delivered to the location of work less any discounts provided in Subsection 109.04 D.3.a.

The Engineer will compare its records with the completed daily force account work reports furnished by the Contractor and make any necessary adjustments. When these daily force account work reports are agreed upon and signed by both parties, said reports become the basis of payment for the work performed, but do not preclude subsequent adjustment based on a later audit by the Department.

The Contractor's cost records pertaining to work haid for on a force

account basis shall be open to inspection or audit by representatives of the Department as provided in Subsection 105.19 J.

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109.05 Basis of Payment for Fixed Quantity Items. When indicated on the Plans or in the Special Provisions, certain items will be paid for on an estimated fixed quantity item basis. Where this occurs the method of measurement and basis of payment indicated in these Specifications for such items are deleted.

When estimated fixed quantities are indicated, the only quantities for which payment will be made are the estimated quantities as shown in the proposal at the unit prices bid.

The bidder should check the estimates and make its own appraisal of the amount of labor, equipment, or material required to complete the work in accordance with the Plans and Specifications. No allowance will be made or claims considered for any quantities used in completing the work in excess of those given in the proposal unless changes due to conditions encountered during construction become necessary and are authorized in writing by the Engineer. In such cases additions or deductions will be made to or from the proposal quantities for the actual volume or amounts charged, with payment adjusted in accordance with the bid price of the item.

If estimated fixed quantity items are deleted completely, no payment will be made.

In cases where a fixed quantity is contested by the Contractor, it shall be the responsibility of the Contractor to provide necessary measurements and computations to support a change in the quantity. If the change is verified and approved by the Engineer, payment will be adjusted in accordance with this Subsection.

In cases where it can be shown that the quantities indicated in the proposal are in error by more than 5%, additions or deductions will be made in excess of or deficient of the 5%, with payment adjusted in accordance with the bid price of the item.

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109.06 Eliminated Items. Should any items contained in the Contract be found unnecessary for the completion of the work, the Engineer may, upon written order to the Contractor, eliminate the items from the Contract. The elimination of these items shall not invalidate the Contract. When the Contractor is notified of the elimination of items, the Contractor will be reimbursed for the actual work done and all actual costs incurred. Reimbursement of materials actually purchased prior to notification of the elimination of items will be paid for at the actual cost of the materials plus 15%. Such materials shall became the property of the Department. In no event will reimbursement for an eliminated item exceed the extended amount of the Contract item. Also, in no case will the Contractor be reimbursed for the loss of anticipated profit.

109.07 Partial Payment. The Engineer will once in each month make an estimate, in writing, of the total amount of work done on the Contract and the value thereof to the date of such estimate. Five percent of the value of the work done as indicated by the estimate shall be retained as security for fulfillment of the Contract until a total of 5% of the total bid price has been retained. Securities may be substituted for this retainage in accordance with Section 6919. Chapter 69. Title 29 of the Delaware Code and as amended. Payment of estimates, except final estimates, shall not exceed those shown on the proposal except those authorized by change order. No such estimates or payments shall be required to be made when in the judgment of the Engineer the work is not proceeding in accordance with the provisions of the Contract, or when in the Engineer's judgment the total value to the work done since the last estimate amounts to less than \$3,000.00. The Engineer, if it deems it expedient to do so, may cause estimates to be made more frequently than one in each month and payments thereon to be made more frequently to the Contractor.

109.08 Payment for Material. When approved by the Engineer, partial estimates may include an allowance for the value of tested and acceptable materials of a non-perishable or non-contaminative nature which have been produced or furnished in a condition ready for incorporation as a permanent part of work yet to be completed, provided the following terms and conditions are met:

- A. Request. The request for payment allowance for properly stored materials must be in writing, accompanied by an itemized inventory statement, written consent of the surety, and documentation of prepayment for the materials. No payment allowance will be permitted for amounts less than \$25,000.00 for each material of a qualifying Contract item.
- B. Materials. An allowance of 100% of the cost to the Contractor for materials, not to exceed 90% of the Contract item price, may be made when such material is delivered and stockpiled or stored in accordance with the requirements specified herein. Prior to such allowance, all such material shall have been tested and found acceptable to the Engineer. Payment shall not be allowed in excess of the quantity required for the Contract. The required quantity shall be based on the Contract bid quantities and approved revisions.
- C. Excluded Materials. No allowance shall be

temporary structures, or for other materials of any kind which will not become an integral part of the finished construction. No allowance shall be made for cement, aggregate, sand, seed, plants, fertilizer, or other perishable or contaminative items, nor for materials which, in the opinion of the Engineer, have an unacceptable shelf life, environmental, or safety restriction.

- D. Storage. All materials shall be stored in an approved manner and in areas where damage is not likely to occur. The material stored shall be dedicated to the Project. When it is determined impractical to store materials within the limits of the Project, the Engineer may approve the storage of materials on private property or, for structural members, in the manufacturer's or fabricator's yard. Requests for payment for such material stored outside the limits of the Project shall be accompanied by a release from the owner and/or tenant of such property or yard agreeing to permit the removal of the materials from the property without cost to the State.
- E. Materials Inventory. Materials shall be available for inspection and inventory at the storage site by the Engineer or its authorized representative at all times.
- F. Materials Measurement and Payment. The method of measurement for materials shall be in units which are easily inventoried and acceptable to the Engineer. Payment allowance for materials shall be included in the progress estimate as a new and separate item and shall be subject to retainage provisions.

As the materials are incorporated in the Project and paid for in place, an equal percentage shall be deducted from progress estimates until 100% of the allowance has been deducted. At the conclusion of the work for which the materials are required, the cost of materials remaining in storage for which payment allowance has been made will be deducted from the progress estimate.

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final estimate. The payment of any current or final estimate or of any retained percentage shall in no way affect the obligation of the Contractor to repair or renew any defective parts of the construction and to be responsible for all damage due to such defects. If at any time there is evidence of any lien or claim for which, if established, the Department might become liable, and which is chargeable to the Contractor, the Department shall have the right to retain out of any payment then due or to become due an amount sufficient to completely indemnify the Department against such lien or claim. If there should prove to be any such claim after all payments are made, the Contractor shall refund to the Department all monies that the Department may be compelled to pay in discharging any lien made obligatory in consequence of the Contractor's neglect or default.

Upon substantial completion of the work under the Contract, the Engineer may release 60% of the amount then retained. The balance of the amount retained will be held until all reports required of the Contractor are received and final payment is authorized by the Department. The Department may, at its option, retain temporarily or permanently a smaller amount and may cause the Contractor to be paid temporarily or permanently, from time to time, such portion of the amount retained as it deems equitable.

No provision contained in these Specifications shall be construed as creating any debt, liability or obligation on the part of the State or Department to any subcontractor, supplier, or materialman.

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109.10 Final Payment. The Engineer will, as soon as practicable after the completion of the Contract, make a final estimate of the work done thereunder and the value of such work, and the Department shall pay the entire sum found to be due after deducting from all previous payments all amounts to be kept and all amounts to be retained under the provisions of the Contract. All prior partial estimates and payments shall be subject to correction in the final estimates payment.

The acceptance by the Contractor of the last payment, as aforesaid, shall operate as and shall be a release to the State, the Department, the Director, and its agents from all claims of liability under the Contract, or for anything done or furnished or relating to the work under the Contract, or for any act or neglect of the State, the Department, the Director, or its agents relating to or connected with the Contract.

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109.11 Source of Supply and Carrier Rates on Construction Materials. Bidders must fully inform themselves as to the source of supply of acceptable materials needed for the work and in regard to the carrier rates and transportation facilities for these materials before submitting proposals.

Inability to secure satisfactory materials from the source upon which the bid was based, or changes in carrier, or the alteration of transportation facilities for these materials during the life of the Contract, shall not constitute cause for claim for extra compensation.

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109.12 Transportation Tax Exemption. All unit prices shall be based on exemption from any transportation tax for which the State is, by law, exempt on materials entering into and forming a part of the Project.

In order for the Contractors to take advantage of the exemption from payment of the tax on transportation and to have the construction materials consigned to the State, in care of itself, the Contractor shall furnish the supplier with a statement certifying that the Contractor has been authorized to claim the exemption, identifying the Contract in which the authorization was given and instructing the supplier to make the shipment involved free of tax.

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109.13 Asphalt Cement Cost Adjustment. For all Sections within <u>Division 400</u>, payments to the Contractor will be adjusted to reflect increases or decreases in the Delaware Posted Asphalt Cement price when compared to the Project Asphalt Cement Base price, as defined in the bid proposal.

The Delaware Posted Asphalt Cement Price will be issued weekly by the Department and will be the industry posted price for Asphalt Cement, F.O.B. Philadelphia, Pennsylvania.

The Project Asphalt Cement Base price will be the anticipated Delaware Posted Asphalt Cement Price expected to be in effect at the time of receipt of bid.

All deviations of the Delaware Posted Asphalt Cement Price from the Project Asphalt Cement Base Price are eligible for cost adjustment. No minimum increase or decreases or corresponding percentages are required to qualify for cost adjustment.

Actual quantity of asphalt cement qualifying for any Asphalt Cement Cost Adjustment will be computed on the basis of weight tickets and asphalt percentage from the approved job mix formula. For Recycled Hot-Mix the asphalt percentage eligible for cost adjustment shall be only the new asphalt cement added to the mix.

There shall be no separate payment for asphalt cement. That cost shall be included in the various unit prices bid per ton (metric ton) for those bid items that contain asphalt cement.

If the Contractor exceeds the authorized allotted completion time, the price of asphalt cement on the last authorized allotted work day shall be the price used for cost adjustment during the time liquidated damages are assessed.

The Project Asphalt Cement Base Price shall be determined by the Department and shall be set forth in the Special Provisions for each project.